

I claim:

1. A method comprising:
for a track of an optically writable label region of an optical disc having a non-integer number of pixel positions around the track such that a last fractional pixel position is defined, determining whether a size of the last fractional pixel position is greater than a fractional threshold; and,
in response to determining that the size of the last fractional pixel position is greater than the fractional threshold, writing a complete pixel to the last fractional pixel position, such that the complete pixel written overlaps onto a first complete pixel position of the track.
2. The method of claim 1, wherein determining whether the size of the last fractional pixel position is greater than the fractional threshold comprises determining whether a width of the last fractional pixel position is greater than the fractional threshold.
3. The method of claim 1, wherein determining whether the size of the last fractional pixel position is greater than the fractional threshold comprises determining whether the size of the last fractional pixel position is greater than a static fractional threshold.
4. The method of claim 1, further comprising dynamically determining the fractional threshold based on an optical density of pixels on pixel positions proximate to the last fractional pixel position.
5. The method of claim 1, further comprising dynamically determining the fractional threshold based on a metric of lightness and darkness of pixels on pixel positions proximate to the last fractional pixel position.

6. The method of claim 5, wherein determining the fractional threshold based on the optical density of pixels on pixel positions proximate to the last fractional pixel position comprises determining the fractional threshold as a constant from which the optical density of pixels on pixel positions proximate to the last fractional pixel position is subtracted.

7. The method of claim 5, wherein determining the fractional threshold based on the optical density of pixels on pixel positions proximate to the last fractional pixel position comprises:

setting the fractional threshold to a first value where the optical density of pixels on pixel positions proximate to the last fractional pixel position is less than an optical density threshold; and,

setting the fractional threshold to a second value less than the first value where the optical density of pixels on pixel positions proximate to the last fractional pixel position is greater than the optical density threshold.

8. The method of claim 1, wherein writing the complete pixel to the last fractional pixel position comprises first sampling the complete pixel to be written to the last fractional pixel position from an image to be written onto the optically writable label region of the optical disc.

9. The method of claim 1, further comprising repeating determining whether the size of the last fractional pixel position is greater than the fractional threshold, and in response to determining that the size of the last fractional pixel position is greater than the fractional threshold, writing the complete pixel to the last fractional pixel position, for each of a plurality of other tracks of the optically writable label region of the optical disc.

10. A method comprising:

resetting an accumulated gap value for a track of an optically writable label region of an optical disc having a non-integer number of pixel positions around the track;

for each continuous pass of a plurality of continuous passes around the track to selectively write pixels to pixel positions around the track:

adding a size of a last fractional pixel position of the pass to the accumulated gap value;

- 5 determining whether the accumulated gap value is greater than a fractional threshold;

in response to determining that accumulated gap value is greater than the fractional threshold,

- 10 writing a complete pixel to the last fractional pixel position of the pass, such that the complete pixel written overlaps onto a first complete pixel position of the pass, and a first complete pixel position for a next pass is defined as adjacent to the complete pixel written; and,

subtracting the size of the complete pixel written from the accumulated gap value.

- 15 11. The method of claim 10, wherein resetting the accumulated gap value comprises setting the accumulate gap value to zero.

12. The method of claim 10, wherein adding the size of the last fractional pixel position of the pass to the accumulated gap value comprises adding a width of the last fractional pixel position of the pass to the accumulated gap value.

- 20 13. The method of claim 10, wherein determining whether the accumulated gap value is greater than the fractional threshold determining whether the accumulated gap value is greater than a static fractional threshold.

14. The method of claim 10, wherein determining whether the accumulated gap value is greater than the fractional threshold determining whether the
25 accumulated gap value is greater than a dynamic fractional threshold.

15. The method of claim 14, wherein determining whether the accumulated gap value is greater than the dynamic fractional threshold comprises determining whether the accumulated gap value is greater than a two-valued fractional threshold having a first value where an optical density of pixels on pixel positions
5 of the pass proximate to the last fractional pixel position of the pass is less than an optical density threshold and a second value less than the first value and where the optical density is greater than the optical density threshold.

16. The method of claim 14, wherein determining whether the accumulated gap value is greater than the dynamic fractional threshold comprises determining
10 whether the accumulated gap value is greater than a constant from which an optical density of pixels on pixel positions of the pass proximate to the last fractional pixel position of the pass is subtracted.

17. The method of claim 10, wherein subtracting the size of the complete pixel written from the accumulated gap value comprises subtracting a width of the
15 complete pixel written from the accumulated gap value.

18. The method of claim 10, wherein writing the complete pixel to the last fractional pixel position of the pass first comprises sampling the complete pixel to be written to the last fractional pixel position of the pass from an image to be written onto the optically writable label region of the optical disc.

20 19. The method of claim 10, further comprising repeating resetting the accumulated gap value and, for each continuous pass of a plurality of continuous passes around the track, adding the size of the last fractional pixel position of the pass to the accumulated gap value, determining whether the accumulated gap value is greater than the fractional threshold, and in response to determining that
25 the accumulated gap value is greater than the fractional threshold, writing the complete pixel to the last fractional pixel position of the pass and subtracting the size of the complete pixel written from the accumulated gap value, for each of a plurality of other tracks of the optically writable label region of the optical disc.

20. An optical disc comprising:

an optically writable label side;

a plurality of concentric tracks on the optically writable label side;

a plurality of pixel positions on each of the plurality of concentric tracks on

5 which pixels of an image are correspondingly and selectively optically written;
and,

a last fractional pixel position of the plurality of pixel positions on each of at
least one of the plurality of concentric tracks, the last fractional pixel position
having a pixel written thereto that overlaps a first complete pixel position of the
10 plurality of pixel positions where the last fractional pixel position has a size
exceeding a threshold.

21. The optical disc of claim 20, further comprising an optically writable data side
opposite to the optically writable label side.

22. The optical disc of claim 20, wherein the pixel written to the last fractional
15 position is sampled from the image.

23. The optical disc of claim 20, wherein the threshold is static.

24. The optical disc of claim 20, wherein the threshold is variable.

25. The optical disc of claim 24, wherein the threshold for the last fractional pixel
position of each track is based on an optical density of pixels on pixel positions
20 proximate to the last fractional pixel position.

26. The optical disc of claim 24, wherein the threshold for the last fractional pixel
position of each track is based on a metric of lightness and darkness of pixels on
pixel positions proximate to the last fractional pixel position.

27. The optical disc of claim 20, wherein the pixels of the image are correspondingly and selectively optically written on each of the plurality of concentric tracks over a plurality of passes, each pass having a plurality of pixel positions that is continuous with a plurality of pixel positions of an adjacent pass,
5 a last fractional pixel position of the plurality of pixel positions of each pass having a pixel written thereto where an accumulated fractional pixel position gap for the track exceeds the threshold.

28. A mass storage device comprising:
an optical marking mechanism to at least optically write markings on a
10 plurality of tracks of an optically writable label side of an optical disc; and,
a controller to selectively write markings to last fractional marking positions of the tracks that overlap first complete marking positions of the tracks.

29. The mass storage device of claim 28, wherein the controller is to write a marking to the last fractional marking position of a track where the last fractional
15 marking position has a size greater than a threshold.

30. The mass storage device of claim 29, wherein the threshold is variable.

31. The mass storage device of claim 30, wherein the threshold for the last fractional marking position of each track is based on an optical density of markings on marking positions proximate to the last fractional marking position.

20 32. A mass storage device comprising:
means for optically writing pixels on a plurality of tracks of an optically writable label side of an optical disc; and,
means for selectively writing pixels to last fractional pixel positions of the tracks that overlap first complete pixel positions of the tracks.

33. The mass storage device of claim 32, wherein the means for selectively writing the pixels to the last fractional pixel positions of the tracks is for writing a pixel to a last fractional pixel position of a track where the last fractional pixel position has a size greater than a threshold.

5 34. A method for manufacturing a mass storage device comprising:

providing an optical marking mechanism that is able to at least optically write markings on a plurality of tracks of an optically writable label side of an optical disc;

10 providing a plurality of motor mechanisms that is able to rotate the optical disc and to move the optical marking mechanism radially relative to the optical disc; and,

providing a controller that is able to write a marking to a last fractional marking position of each track that overlaps a first complete marking position of the track where the last fractional marking position has a size greater than a threshold.

15 35. A computer-readable medium having a computer program stored thereon to perform a method comprising transferring firmware to a mass storage device that has an optical marking mechanism that is able to at least optically write markings on a plurality of tracks of an optically writable label side of an optical disc, the
20 firmware allowing the mass storage device to be able to write a marking to a last fractional marking position of each track that overlaps a first complete marking position of the track where the last fractional marking position has a size greater than a threshold.